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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/712,932	11/16/2000	Ji Eun Lee	P-151	3161
34610	7590	05/26/2004	EXAMINER	
FLESHNER & KIM, LLP P.O. BOX 221200 CHANTILLY, VA 20153			CARTER, AARON W	
			ART UNIT	PAPER NUMBER
			2625	
			DATE MAILED: 05/26/2004	

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/712,932

Applicant(s)

LEE ET AL.

Examiner

Aaron W Carter

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 March 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-31 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 November 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. This action is responsive to papers filed on March 10, 2004.

Response to Amendment

2. In response to applicant's amendment received on March 10, 2004, all requested changes to the specification and claims have been entered. Claims 13-31 have been added.

Response to Arguments

3. Applicant's arguments, see paper number 10, pages 9-13, filed March 10, 2004, with respect to the rejection(s) of claim(s) 1-12 under 35 USC 102(b) and 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of US Patent 5,850,482 to Meany et al.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 15, 25 and 26 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It appears that the either the term "uniformly" in line 1 of the claim or

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the phrase "not equal" on line 2 is in correct, making the claim indefinite. Examiner will interrupt as though the phrase "not equal" was replaced by "equal", until otherwise notified. A similar situation appears in claims 25 and 26. Appropriate correction or clarification is required.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-5, 9-11, 13, 17, 18 and 21-23 are rejected under 35 U.S.C. 102(e) as being anticipated by US Patent 5,850,482 to Meany et al. ("Meany").

6. As to claim 1, Meany discloses a method for quantization of a histogram bin value of an image, characterized in that:

The range of the histogram bin value is non-uniformly quantized according to the frequency of occurrence (column 12, line 64 – column 13, line 3, column 14, lines 12-20 and lines 52-59).

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As to claim 2, Meany discloses the method according to claim 1, wherein the range varies according to predetermined thresholds of the histogram bin value (column 14, lines 57-59 and Fig. 5B).

As to claim 3, Meany discloses the method according to claim 1, wherein the value having a histogram bin value of '0' is mapped into a single quantum, equivalent to a code value (Fig. 5B and column 14, line 66 – column 15, line 11).

As to claim 4, Meany discloses the method according to claim 1, wherein the values having a histogram bin value between '0.0' and a very close number of '0.0' is mapped into a single quantum, equivalent to a code value (Fig. 5B and column 14, line 66 – column 15, line 11).

As to claim 5, Meany discloses the method according to claim 2, wherein the values having a histogram bin value of more than the largest predetermined threshold are mapped into a single quantum, equivalent to a code value (Fig. 5B and column 14, line 66 – column 15, line 11).

As to claim 9, Meany discloses the method according to claim 2, wherein the range having a bin value greater than '0' and less than the largest threshold is uniformly quantized into a plurality of sections (Fig. 5B and column 14, line 66 – column 15, line 11).

As to claim 10, Meany discloses the method according to claim 2, wherein the range having a bin value greater than '0' and less than the largest threshold is non-uniformly quantized (Fig. 5B and column 14, line 66 – column 15, line 11).

As to claim 11, Meany discloses the method according to claim 10, wherein the sub-ranges divided by the remaining thresholds are uniformly quantized into a plurality of sections (Fig. 5B and column 14, line 66 – column 15, line 11).

As to claim 13, Meany discloses a method, comprising:

Determining a histogram having a plurality of threshold values of a histogram bin value;

Non-uniformly quantizing the histogram by using different range values in the at least first, second and third sections of the histogram determined by the threshold values (column 12, line 64 – column 13, line 3, column 14, lines 12-20, Fig. 5B and column 14, line 66 – column 15, line 11).

As to claim 17, Meany discloses the method of claim 13, wherein the first and third sections are each mapped into a single quantum (Fig. 5B and column 14, line 66 – column 15, line 11).

As to claim 18, Meany discloses the method of claim 13, wherein sub-ranges divided within the second section are uniformly quantized (Fig. 5B and column 14, line 66 – column 15, line 11).

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As to claim 21, Meany discloses a method for quantization of a histogram bin value of an image, comprising:

Providing a plurality of 2^N bin values using N bits (column 14, lines 38-56); and

Non-uniformly quantizing a range of the histogram bin value according to the frequency of occurrence (column 12, line 64 – column 13, line 3, column 14, lines 12-20, Fig. 5B and column 14, line 66 – column 15, line 11).

As to claim 22, Meany discloses the method of claim 21, wherein the range varies by using different range values in each of a first section of the histogram below a prescribed threshold of the histogram bin value and a second section of the histogram including the values greater than the prescribed threshold (Fig. 5B and column 14, line 66 – column 15, line 11).

As to claim 23, Meany discloses the method of claim 22, wherein a third section of the histogram includes values having a histogram bin value between 0.0 and a number larger and very close to 0.0 are mapped into a single quantum in quantizing the histogram bin value (Fig. 5B and column 14, line 66 – column 15, line 11).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

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having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 6, 12, 16, 24-26 and 29-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Meany.

As to claim 6, Meany discloses the method according to claim 5, wherein when the range of the respective bin value of the histogram is normalized as the range of values from -14 to 14, the largest predetermined threshold is a value ranging from 7 to 14.

Meany does not disclose expressly discloses that the range of bin values is from 0 to 1 or that the threshold is a value ranging from 0.1 to 1.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to pick any arbitrary number for the bin values. Applicant has not disclosed that having a range of values from 0 to 1 provides an advantage, is used for a particular purpose or solves a stated problem. One of ordinary skill in the art, furthermore, would have expected Applicant's invention to perform equally well with the range of values -14 to 14.

Therefore, it would have been obvious to combine to one of ordinary skill in this art to modify the invention disclosed by Meany with a range of bin values from 0 to 1 to obtain the invention as specified in claim 6.

Claim 12 is rejected for the same reasons stated for claim 6 above.

Claim 16 is rejected for the same reasons stated for claims 2 and 6 above.

Claim 24 is rejected for the same reasons stated for claim 6 above.

Claim 25 is rejected for the same reasons stated for claim 11 above.

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Claim 26 is rejected for the same reasons stated for claim 11 above.

Claim 29 is rejected for the same reasons stated for claim 6, 13 and 21 above.

As to claim 30, Meany discloses the method of claim 29, wherein the first region is allocated a single quantization level, the second region is allocated X quantization levels and the third region is allocated $2^N - X - 1$ quantization levels (Fig. 5B and column 14, lines 38-56, wherein the first superbin may have 1 quantization level, the second X and the has whatever's left of the 2^k original bins).

As to claim 31, please refer to the rejections of claim 6 above.

9. Claims 7, 8, 14, 15, 19, 20, 27 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Meany in view of US Patent 6,529,202 to Wu.

As to claim 7, Meany discloses the method according to claim 1.

Meany does not disclose expressly wherein the histogram is a color histogram.

Wu discloses that it is well know in the art that color histograms are used in content based image retrieval system for extracting image color content (column 1, lines 19-21). Wu also discloses a process wherein the range of the histogram bin value is non-uniformly quantized according to the frequency of occurrence (column 2, line 58 – column 3, line 15) .

Meany & Wu are combinable because they are from the same field of histogram creation and manipulation.

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At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine inventions of Meany and Wu.

The suggestion/motivation for doing so would have been more accurate color representation (column 3, lines 9-12).

Therefore, it would have been obvious to combine Meany with Wu to obtain the invention as specified in claim 7.

As to claim 8, the combination of Meany and Wu disclose the method according to claim 7, Wu further discloses wherein the histogram is a color structure histogram (column 3, lines 16-23).

As to claim 14, please refer to the rejection of claims 4 and 7 above.

As to claim 15, the combination of Meany and Wu disclose the method according to claim 14, Meany further discloses wherein the second section is uniformly quantized within each of a plurality of sub-sections, wherein a range value for each sub-section is not equal (Fig. 5B and column 14, line 66 – column 15, line 11).

As to claim 19, the combination of Meany and Wu disclose the method according to claim 13, Wu further discloses wherein further disclosing performing a search using the non-uniformly quantized histogram (column 1, lines 19-21).

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As to claim 20, please refer to the rejections of claim 7 above.

As to claim 27, please refer to the rejections of claims 6 and 7 above.

As to claim 28, please refer to the rejections of claims 1 and 7 above.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US Patent 5,835,117 to Small discloses non-uniform quantization.

US Patent 5,210,820 to Kenyon discloses non-uniform quantization.

US Patent 5,298,896 to Lei et al. discloses non-uniform quantization.

US Patent 5,546,474 to Zuniga discloses non-uniform quantization.

US Patent 6,128,346 to Suarez et al. discloses non-uniform quantization.

US Patent 5,960,371 to Saito et al. discloses non-uniform quantization.

US Patent 5,883,968 to Welch et al. discloses non-uniform quantization.

US Patent 6,597,738 to Park et al. discloses non-uniform quantization.

US Patent 6,127,669 to Sidiropoulos et al. discloses non-uniform quantization.

US Patent 6,504,954 to Goldstein discloses non-uniform quantization.

US Patent 5,063,607 to FitzHenry et al. discloses non-uniform quantization.

US Patent 5,995,095 to Ratakonda discloses non-uniform quantization.


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11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Aaron W Carter whose telephone number is (703) 306-4060. The examiner can normally be reached on 7am - 3:30 am (Mon. - Fri.).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta can be reached on (703) 308-5246. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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